NUTRITION ASSESSMENT IN THE WEST BANK AND GAZA

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ACRONYMS AND FOREIGN TERMS

BCC	Behavior change communication
BFHI	Baby friendly hospital initiative
BMI	Body mass index
DALYs	Disability-adjusted life years
DDM	Data for Decision-Making Project
GNP	Gross national product
HDIP	Health, Development, Information and Policy Institute
HIV/AIDS	Human immunodeficiency virus/acquired immune deficiency syndrome
ICPD	International Conference on Population and Development
IDA	Iron deficiency anemia
IDD	Iron deficiency disorders
IEC	Information, education and communication
LAM	Lactational amenorrhea method
MEDS	Monitoring, Evaluation and Design Support
MOH	Ministry of Health
NGO	Nongovernmental organization
PCBS	Palestinian Central Bureau of Statistics
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNRWA	United Nations Relief and Works Agency
USAID	United States Agency for International Development
WB/G	West Bank/Gaza
WFP	World Food Programme
WHO	World Health Organization
WHO/EMRO	World Health Organization/Eastern Mediterranean Regional Office

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EXECUTIVE SUMMARY

The overall nutritional status of the population in the West Bank and Gaza (WB/G) has improved over the last two decades as a result of better health care and good education. Despite these achievements, however, certain nutritional problems still remain as public health concerns.

Food security has largely been achieved in terms of the availability of sufficient food supplies; the majority of households appear to have adequate purchasing power to ensure daily energy requirements. This situation seems precarious and indeed has changed in the recent past as a consequence of the political context. Thirty-eight and a half percent of West Bank families and 34 percent of Gaza families fall into the low standard of living groups who spend over 53 percent of their disposable income on food and so are more vulnerable to economic and political pressures. At the low-income levels in Palestine, nutritional problems are related more to the balance and quality of food in the diet than to total dietary energy intake.

The nutritional status of children under five is a good indicator of overall well-being in a society and reflects food security as well as health care and environmental conditions. Recent studies show low levels of severe undernutrition in Palestinian children, but some mild to moderate acute and chronic malnutrition. A 1996 Palestinian Central Bureau of Statistics (PCBS) survey found stunting (the result of chronic undernutrition and poor socioeconomic conditions) in 7.2 percent of children under five (6.7 percent in the West Bank and 8.7 percent in Gaza). These levels of stunting are lower than many other comparable countries in the Middle East region, probably due to higher levels of female education and a good primary health care system.

Infant feeding practices greatly affect children's health in the short and long term. Although breastfeeding is nearly universal, it is not practiced optimally, thereby losing the full health, fertility, and economic benefits. According to PCBS (1997), almost all mothers breastfeed their babies and most begin almost immediately after birth. Only 51 percent of infants are exclusively breastfed for the first 4 months; many mothers give water and sugar, herbal drinks, and water or juice to their 1- or 2-month-old infants. Health personnel are key to promoting the early initiation of breastfeeding. More than 80 percent of births occur in hospitals or maternity centers in WB/G. Health care providers need additional education about optimal breastfeeding and the introduction of complementary foods. Since mothers generally only stay in the hospital or maternity center for 1 day after giving birth, it is also important to reach the health workers who visit newly delivered women at home with training on how to cope with common breastfeeding problems and to encourage mothers to persevere in their efforts and avoid using breastmilk substitutes. In addition, it appears that mothers-in-law are highly influential in matters of child care, especially with respect to child feeding. An

information, education and communication (IEC) campaign that targets this group would be important.

In addition to the loss of optimum nourishment and other benefits for the baby, failure to breastfeed exclusively is a lost opportunity for fertility reduction. Sustaining breastfeeding and child spacing through the lactational amenorrhea method (LAM) supports two of the most important maternal and child health interventions: it saves infant lives and has an important impact on child spacing and lifetime fertility. LAM has been shown to contribute significantly to child spacing and fertility reductions in countries where it is properly taught to health providers and clients and promoted through IEC and counseling. It is recommended that the United States Agency for International Development (USAID) program introduce LAM as a viable child-spacing method in reproductive health programs.

Iron deficiency anemia (IDA) is by far the most pervasive public health nutrition problem in WB/G and has a profound negative effect on human health and development. Studies and clinic records indicate considerable anemia among pregnant women in WB/G (ranging from 21 to 67 percent), with the result that their infants are more likely to be born with low birth weight and depleted iron stores. There is evidence, however, that anemia levels may be improving. One study in Gaza (United Nations Relief and Works Agency [UNRWA], 1994) found 33 percent anemia among pregnant women in their first trimester and 44 percent during the third trimester. Another recent study in two communities in the West Bank (Stene et al., 1999) found lower levels of IDA among pregnant women (21.1 percent) than nonpregnant women (25.9 percent), perhaps indicating the effect of widespread iron/folate supplementation of pregnant women in health facilities. Multiple studies and data collection systems have measured IDA in young children and found that levels are high, averaging about 50 percent of children between 6–36 months. School children are affected as well.

The main causes of such a high magnitude of IDA are low dietary intake of iron and poor bioavailability of dietary iron. High consumption of tea and high rates of fertility coupled with low birth intervals exacerbate the situation. There are many approaches to reducing anemia. A recent Israeli–Palestinian conference of nutrition experts recommended fortification of wheat flour with iron as one of the most cost-effective and sustainable approaches for control of IDA. Supplementation of pregnant women with iron and folic acid is a second commonly used approach in WB/G and many other countries. Dietary approaches to improve iron status are needed as well to increase the intake of iron-rich foods; promote more consumption of iron sources that are highly bioavailable; seek to increase dietary factors which enhance iron absorption, such as lemon juice or oranges with a meal; and, reduce practices that inhibit iron absorption, such as drinking tea with meals. Adequate birth spacing would reduce the impact of reproductive stress and allow a woman sufficient time to build up her iron stores between pregnancies.

Iodine deficiency disorders (IDD) do exist, but could be eliminated as a public health problem in WB/G through the introduction and use of iodized salt. The United Nations

Children's Fund (UNICEF) has taken the lead on addressing IDD and USAID should support and complement these efforts to achieve universal salt iodization. Behavior change communication (BCC) programs should target consumers, encouraging them to buy iodized salt for their family's health. It appears that clinical vitamin A deficiency is not a problem in WB/G due to the presence of greens and carotene-rich fruits as well as the availability of dairy foods in the diet.

Nutrition education should be included in the Mission's BCC programs. Dietary advice promoting a healthy varied diet based on available foodstuffs can address many of the nutritional and health problems of the WB/G population. Particular attention should be paid to messages related to prevalent micronutrient deficiencies, which are amenable to dietary improvements (e.g., iron and folic acid). BCC targeted to adolescents would be most appropriate, not only because they are easy to reach in schools and through the mass media, but also because their dietary patterns appear to be in transition from traditional healthy foods to Western-style unhealthy and fast foods.

Causes of mortality and morbidity in the WB/G have changed over the years. The Ministry of Health (MOH) currently views noncommunicable chronic diseases, including diabetes and heart disease, as the biggest public health challenges. Most of the top 10 causes of disability-adjusted life years (DALYs) lost to mortality and morbidity are influenced by diet. Changes in diet due to changes in society and lifestyles have escalated the incidence of obesity and diet-related noncommunicable diseases, such as diabetes mellitus and heart disease. Evidence is now emerging to suggest that the prevalence of overweight and obesity is already a massive problem and is increasing.

The causes of noncommunicable chronic diseases are multiple, but dietary practices, lack of physical activity, smoking, and stress are significant factors. The key to coronary heart disease control is the management of risk factors. Most public health professionals contacted during this assessment stated that diabetes affects at least 10 percent of the adult population. Unfortunately, it appears that many of these patients are not being well managed because they lack appropriate dietary counseling or properly prescribed medications. There is a high level of concern for the medical consequences of uncontrolled diabetes.

The health care system cannot afford the staggering costs of this morbidity. In addition, the MOH and other health care partners are spending a considerable portion of their budgets on pharmaceuticals to treat these conditions. IEC programs are urgently needed to raise awareness of the risks of obesity and diet-related noncommunicable diseases and preventing or lowering these risks. Improving awareness about nutrition will contribute to overcoming some of the greatest health challenges facing the country, including the burden of chronic and degenerative diseases. Health promotion activities should be aimed at improving diabetes control, hypertension screening and control, and heart disease prevention.

I. INTRODUCTION

The United States Agency for International Development (USAID) Mission in the West Bank and Gaza has concentrated its program in three strategic areas: expanded private sector economic opportunities, greater access to and more effective use of scarce water resources, and more responsive and accountable governance. At present, the Mission is considering a fourth area: reproductive and primary health and health policy. It has supported a pilot activity in the health sector focusing on maternal and child health and reproductive health in three distinct areas of the West Bank and Gaza (WB/G).

In support of the design of a program to address primary health problems, including high fertility and maternal and child health, the Mission requested assistance through the Monitoring, Evaluation and Design Support (MEDS) project to help conduct health sector assessments in two distinct geographic areas—the West Bank and Gaza—and to design a new Strategic Objective in health. Over a period of several weeks in February and March, MEDS consultants teamed with colleagues from USAID in carrying out the assessment and design work. An overall burden of disease assessment was conducted to identify and analyze priority health problems. This was supplemented by small, specialized assessments on nutrition and human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS).

MEDS provided a nutrition expert with significant USAID programming experience to examine the problem of nutrition in the West Bank and Gaza and to make recommendations for both short- and long-term interventions, giving special attention to implications for possible behavior change communication (BCC) activities. The consultant spent two weeks in the West Bank and Gaza, from February 6 to 21, 2000, examining available studies and research and interviewing Ministry of Health (MOH) experts, nongovernmental organizations (NGOs), and other donor institutions. The report is organized by topic with assessment information and research and concludes with recommendations. In accordance with the requested scope, the consultant presented a broad overview of the West Bank and Gaza nutritional status, along with recommendations or options for inclusion in the Mission's proposed new health Strategic Objective.

Good health is a crucial component in the quality of life, a prerequisite for improved educational attainment, and an essential element to economic productivity. Good nutrition is key to maintaining and/or improving health and the ability to secure an adequate diet is fundamental to achieving social and economic advances. Improving nutritional status is linked to economic progress, while economic progress often leads to the improvement of nutritional status, creating a virtuous cycle. Unfortunately, the cycle can be reversed when economic declines and pressures adversely affect aggregate and household food availability and nutritional status.

In Palestine, food security has largely been achieved in terms of the availability of sufficient food supplies; the majority of households appear to have adequate purchasing power to ensure daily energy requirements. This situation seems precarious and indeed has changed in the recent past as a consequence of the political context. The overall nutritional status of the population has improved over the last two decades as a result of better health care and good education. Despite these achievements, however, certain nutritional problems still remain as public health concerns. There are some children whose growth is stunted—the result of chronic undernutrition and poor socioeconomic conditions. These children are likely to be found in households at or below poverty level. Anemia is widespread among women and children. Although breastfeeding is nearly universal, it is not practiced optimally, thereby losing the full health, fertility and economic benefits. Changes in diet due to changes in society and lifestyles have escalated the incidence of obesity and diet-related noncommunicable diseases, such as diabetes mellitus and heart disease.

Nutrition is the foundation of good health and the burden of disease in Palestine is significantly influenced by dietary habits. Most of the top 10 causes of disability-adjusted life years (DALYs) lost to mortality and morbidity in the Eastern Mediterranean region, according to the World Health Organization (WHO), are influenced by diet (e.g., perinatal mortality and heart disease). Nutritional disorders damage health directly by causing disease, but also indirectly by increasing susceptibility to disease. Some diseases, such as diarrheal diseases, cause nutritional disorders by creating nutrient loss, which reduces the body's ability to absorb nutrients. Children and women are most vulnerable to nutritional disorders because of their higher requirements for nutrients for growth and reproduction, their lower status in society, and the family and other cultural factors.

II. UNDERNUTRITION

A. FOOD SECURITY

Household food security is defined as sustainable access to safe food of sufficient quantity and quality, including energy, protein, and micronutrients, to ensure adequate intake and a healthy life for all family members. For the poor, access to sufficient food is a challenge and food security is often precarious. Poverty and malnutrition are usually strongly linked. Thirty-six percent of families in Gaza and 10.5 percent of West Bank families are living below the poverty line (United Nations Development Programme [UNDP], 1997). Gross national product (GNP) per capita in Gaza is half that of the West Bank. Between 1993 and 1996, there was a deterioration in economic conditions due, to a large extent, to the sociopolitical environment. United Nations Educational, Scientific and Cultural Organization (UNESCO) data suggest that per capita GNP declined by 21 percent between 1992 and 1998. Unemployment has risen to 17.8 percent in the 1994–98 period. Wages and household purchasing power have declined as well. Economic opportunities are constrained by the political and social environment as effected by the peace process. There is severe economic hardship among the Palestinian population living near or below the poverty line. This vulnerable population has been further affected by an economic recession in the region and by high levels of unemployment or underemployment, especially among youth. The rate of women's participation in the labor force is low so that dependency ratios are high, leaving many families vulnerable in terms of being able to meet their basic needs.

The Palestinian Central Bureau of Statistics (PCBS) has adopted the ratio of food expenditure to total expenditure as an indicator of poverty or standard of living. The data reveal that 38.5 percent of West Bank families and 34 percent of Gaza families fall into the low standard of living groups who spend over 53 percent of their disposable income on food. Using this measure, the Gaza Strip (especially outside Gaza City) in the north and south of the West Bank have the lowest standards of living. Overall, Palestinian families spend 38.7 percent of their monthly family expenditures on food, the highest household expense. Poor households spend a larger proportion of their income on food and are therefore more vulnerable to economic and political pressures. As expected, stunting of preschool children is higher in poor regions (e.g., Gaza), reflecting worse overall socioeconomic conditions.

At the low-income levels in Palestine, nutritional problems are related more to the balance and quality of food in the diet than to total dietary energy intake. Many nutritional disorders result from an inadequate dietary balance because the poor often cannot afford the variety of foods needed to maintain good health. People with higher income tend to consume more animal products (meat, poultry, and fish), which are good providers of protein, iron, and zinc—consumption of which actually increases the bioavailability of iron and zinc.

Periodic closing of the borders of Gaza and West Bank towns for unspecified periods due to Israeli security concerns can affect household income and food security. Most food is imported into the West Bank and Gaza (WB/G) from Israel or other countries. Food stocks in the Palestinian Territory do not exceed more than one week, according to the World Food Programme (WFP). Palestinian farmers depend for their living on exports of surplus agricultural products, such as vegetables, fruits, and eggs. The export–import movement is frozen during the repeated and sudden periods of closure, which also cuts off Gaza from the West Bank. In 1996, following a prolonged border closure in February and March, a nongovernmental organization (NGO) conducted a rapid household survey in the Gaza Strip. The results showed that the mean monthly income decreased by 32 percent and the quality of diets deteriorated (e.g., less than 50 percent of households could still buy fruits and milk during this closure) (Iyyada and Hannon, 1996).

B. MALNUTRITION IN YOUNG CHILDREN

The nutritional status of children under five is a good indicator of overall well-being in a society and reflects food security as well as health care and environmental conditions. Recent studies show low levels of severe undernutrition in children, but some mild to moderate acute and chronic malnutrition. Malnutrition is generally the result of a combination of inadequate dietary intake and infection. In children, malnutrition is synonymous with growth failure—malnourished children are shorter and lighter than they should be for their age. A 1996 PCBS survey found stunting (low height for age, reflecting chronic, long-term undernutrition) in 7.2 percent of children under five (6.7 percent in the West Bank and 8.7 percent in Gaza). A previous study conducted in 1995 found that 14 percent of young children in the Gaza Strip were stunted. These levels of stunting are lower than many other comparable countries in the Middle East region, probably due to higher levels of female education and a good primary health care system. Stunting is linked to deficits in children's intellectual development that persist in spite of schooling and impair their learning ability.

Only a small proportion of Palestinian preschoolers are malnourished; however, those who are need assistance. If a child is even mildly underweight, the mortality risk is increased. WHO estimates that malnutrition was associated with over half of all child deaths that occurred in developing countries in 1995. Malnutrition increases a child's risk of dying from many diseases—most prominently measles, pneumonia, and diarrhea. Programs to prevent malnutrition can reduce mortality from several diseases simultaneously. Efforts to promote even modest nutritional improvements, such as small changes in feeding behavior, will have a beneficial impact on mortality rates over time.

The economic costs of nutritional disorders are staggering. Undernourished or anemic adults are less productive and childhood stunting leads to an estimated 6–8 percent loss in labor productivity in adulthood. Strong children grow into strong, productive adults. Well-nourished girls grow into women who face fewer risks during pregnancy and childbearing and whose children set out on firmer developmental paths, physically and mentally, than malnourished girls. Societies that meet women's and children's nutritional

needs also lift their capacities for greater social and economic progress. Good early nutrition is most likely to result where there is equitable economic growth. Good nutrition, in turn, contributes to greater productivity and thus to economic growth. Continued improvements in employment opportunities targeted to the poorest areas coupled with ongoing strengthening of basic services (water, wastewater, education, and health care) in these parts of the Palestinian Territory will contribute to further reductions in the levels of childhood undernutrition. Improving infant feeding practices, as discussed below, can help additional children have a healthy start in life.

C. INFANT FEEDING

Infant feeding practices are among the most important aspects of health and nutrition to be considered because they greatly affect the child's health in the short and long term. Exclusive breastfeeding for the first 6 months and continued breastfeeding with the addition of safe, high-quality, complementary foods into the second year of life, provides the best nourishment for an infant and protects children from infections. This is the recommended practice of the Ministry of Health (MOH) and WHO. Breastfeeding confers enormous benefits to the baby by preventing malnutrition and illness, thereby saving lives and money.

Breastfeeding is nearly universal in Palestine but not exclusive for 6 months, as recommended by WHO and the MOH. According to the Palestinian Central Bureau of Statistics (PCBS) (1997), almost all (96 percent) mothers breastfeed their babies and most begin almost immediately after birth. This declines to 88.8 percent by 3–5 months, then to 73.9 percent by 6–8 months. Only 51 percent of infants are exclusively breastfed for the first 4 months. Twenty-one percent of infants are fed breastmilk substitutes in the first month, rising to 43 percent in the second month and up to 50 percent in the fourth month (PCBS, 1996), and powdered milk is given to many children under 6 months (45 percent). Many mothers give water and sugar, herbal drinks, and water or juice to their 1- or 2-month-old infants.

WHO guidelines recommend that breastfeeding begin immediately after birth. The majority of mothers initiate breastfeeding during the first few hours, but some women delay breastfeeding for 1–3 days for various reasons (Green, 2000).

Breastfeeding is believed to be very healthy for both the baby and the mother. Despite this, few women follow the MOH and WHO guidelines for exclusive breastfeeding for the first 6 months. The most common reasons for giving infants other liquids and weaning babies at less than 6 months are "insufficient milk" and "the child refused the breast," followed by "mother's illness" (PCBS, 1997). Some employed women admitted that it was easier to bottle-feed their babies; they tend to report shorter breastfeeding periods, or irregular breastfeeding (Green, 2000). "Some women also have taken on modern ways and can afford artificial feeding and are vain and want to maintain their breast shape…" (Green, 2000). The economic value of breastfeeding is widely appreciated (Green, 2000), although families still buy a lot of artificial formula to increase their infants' weight.

More than 80 percent of births occur in hospitals or maternity centers in WB/G. Therefore, health personnel are key to promoting the early initiation of breastfeeding. Health care providers need additional education about optimal breastfeeding and the introduction of complementary foods. "Women, and Palestinians generally, seem to have great respect for, and trust in, modern medicine and practitioners. Almost all advice on matters pertaining to pregnancy, the perinatal period, and childbirth itself, comes from medical personnel, rather than from traditional health practitioners" (Green, 2000). For this reason, the United Nations Children's Fund (UNICEF) has started a baby friendly hospital initiative (BFHI) in 12 hospitals. However, many more facilities need to be reached with training for their staffs on the benefits of exclusive and immediate breastfeeding and skills on in supporting mothers in their early efforts to establish breastfeeding.

Traditional practices around births include that the newly delivered mother is often encouraged to drink herbal teas. These seem to be ritual teas for "raising the blood" of the mother. The Palestinian mother is also given hot soups made from rice, meat, vegetables, fruits, and green wheat because these items are considered good for breastfeeding, for supplying iron or preventing anemia, and for providing energy. Phrases suggesting folk medicine concepts include "increasing the blood" and "raising the blood." Both arose in connection with teas or diet or iron tablets, which were thought to be healthy for pregnant or postpartum mothers. Exactly what these phrases mean should be further researched since they might prove useful in nutritional and other health education aimed at pregnant and postpartum women (Green, 2000).

Mothers generally only stay in the hospital or maternity center for 1 day after giving birth. Therefore, it is also important to reach the health workers who visit newly delivered women at home with training on how to cope with common breastfeeding problems and encourage mothers to persevere in their efforts and avoid using breastmilk substitutes. Many respondents in Green's qualitative research mentioned the value of specialized nurses and trained midwives. These health workers as well as community health workers should be used. "A few respondents mentioned that there is more exclusive breastfeeding in their areas nowadays because health workers have recommended this. In earlier days, some pointed out, women did not know there are dangers associated with non-exclusive breastfeeding. Still herbal teas, and sugar/honey and water seem not to count as exceptions to exclusive breastfeeding, for these and most women" (Green, 2000). In addition, it appears that mothers-in-law are highly influential in matters of child care and especially with respect to child feeding. An information, education and communication (IEC) campaign that targets this group would be important. Anecdotal reports consistently point to the mother-in-law's role in promoting formula to supplement what they perceive as inadequate milk, to calm a fussy infant, or to accelerate weight gain.

A study carried out by UNICEF and the Health Development, Information, and Policy Institute (HDIP) in 1997, *Marketing and Utilization of Breastmilk Substitutes in the West Bank and Gaza Strip*, revealed widespread marketing of breastmilk substitutes to health providers and mothers. These promotional activities by the infant food industry are in

violation of the International Code of Marketing of Breastmilk Substitutes and undermine MOH and other efforts to promote exclusive breastfeeding. The MOH is concerned about the tactics of these companies and is supported in its efforts to control them by UNICEF. USAID's health program should be supportive of these efforts (e.g., by including the topic in health worker training).

In addition to the loss of optimum nourishment and other benefits for the baby, failure to breastfeed exclusively is a lost opportunity for fertility reduction. Full breastfeeding is a reliable, efficacious method for spacing pregnancies (Cooney et al., 1997). Although most women believe that a two- to three-year interval between births would be best for both the mother's and baby's health, in practice, the husband and his family often pressure the wife to have successive babies quickly with less than two years between births. This seems to be the case in Gaza, especially. Sustaining breastfeeding and child spacing through the lactational amenorrhea method (LAM) supports two of the most important maternal and child health interventions: it saves infant lives and has an important impact on child spacing and lifetime fertility. Lower fertility decreases a woman's risk of death from pregnancy-related causes. LAM can be an effective contraceptive option that increases the method mix available at clinics. LAM has been demonstrated as a way to introduce first time acceptors to family planning and is often followed by the use of other modern methods (International Conference on Population and Development [ICPD], United Nations, 1994).

Low birth weight, reported as the first cause of infant mortality by the MOH in 1998, is caused in part by maternal malnutrition, including anemia. Not much data are available on the percentage of infants born with a low birth weight and recording of birth weight is not systematic. Improved prenatal care that includes good counseling about nutrition would be appropriate to assist in tackling this problem.

D. MICRONUTRIENTS

Iron deficiency anemia (IDA) is by far the most pervasive public health nutrition problem in WB/G. Anemia has a profound negative effect on human health and development, including increased maternal and newborn mortality, impaired health and development of infants and children, limited learning capacity, impaired immune function, and reduced working and productive capacity. Anemia in pregnancy is an important cause of maternal mortality, increasing the risk of hemorrhage and sepsis during childbirth. Infants born to anemic mothers often suffer from low birth weight and anemia themselves. In infancy and early childhood, even mild iron deficiency anemia can delay psychomotor development and impair cognitive development. Poor school achievement among primary school and adolescent children has also been linked to iron deficiency. Iron deficiency anemia is thus a major impediment to individual and national development.

Studies and clinic records indicate considerable anemia among pregnant women in WB/G (ranging from 21 to 67 percent), with the result that their infants are more likely to be born with low birth weight and depleted iron stores. There is evidence that anemia levels may be improving. One study in Gaza (United Nations Relief and Works Agency

[UNRWA], 1994) found 33 percent anemia among pregnant women in their first trimester and 44 percent during the third trimester. Another recent study in two communities in the West Bank (Husseini, 1999) found lower levels of IDA among pregnant women (21.1 percent) than nonpregnant women (25.9 percent), perhaps indicating the impact of widespread iron/folate supplementation of pregnant women in health facilities. Multiple studies and data collection systems have measured IDA in young children and found that levels are high, averaging about 50 percent of children between 6–36 months. School children are affected as well.

A high prevalence of IDA is common throughout the Middle East region. The Palestinian Territory is similar to neighboring countries, including Lebanon, Syria, and Jordan (World Bank, 1999). Generally, the main causes of such a high magnitude of IDA are low dietary intake of iron and poor bioavailability of dietary iron. High consumption of tea and high rates of fertility coupled with low birth intervals exacerbate the situation. However, there is a need to look closely at the most important determinants of IDA in WB/G populations in order to design appropriate counseling and mass communication strategies to address the problem.

There are many approaches to reducing anemia. Fortification of wheat flour with iron is one of the most cost-effective and sustainable approaches for control of IDA. The Eastern Mediterranean Regional Office (EMRO) of WHO has sponsored several regional meetings to promote iron fortification of wheat flour in the Eastern Mediterranean region and offers technical support and funding for countries that choose to implement this strategy. The minister of health has expressed interest in pursuing this option and an MOH nutritionist has been gathering preliminary information for such a program. A recent Israeli–Palestinian conference of nutrition experts recommended the fortification of basic foods as the most cost-effective method of preventing micronutrient deficiencies and that it should be adopted by both Israel and the Palestinian Authority.

Supplementation of pregnant women with iron and folic acid is a second commonly used approach in WB/G and many other countries. There are questions concerning the efficacy of these supplements in reducing anemia, particularly with women's compliance in actually taking the pills. Experimentation is ongoing in some countries to determine if a weekly dose of these nutrients can be as effective as a daily supplement. The weekly dose would certainly be logistically easier and less costly. There appears to be some interest in exploring this possibility in WB/G. Also, it seems that sugar-coated iron tablets are better accepted and perhaps better tolerated than the more commonly used type.

Dietary approaches to improve iron status are needed as well to increase the intake of iron-rich foods; promote more consumption of iron sources that are highly bioavailable; seek to increase dietary factors which enhance iron absorption, such as lemon juice or oranges with a meal; and, reduce practices that inhibit iron absorption, such as drinking tea with meals. Adequate birth spacing would reduce the impact of reproductive stress and allow a woman sufficient time to build up her iron stores between pregnancies.

Iodine deficiency disorders (IDD) constitute the single greatest cause of preventable brain damage in the fetus and infant and retarded psychomotor development in young children. The most visible result of iodine deficiency is goiter, the enlargement of the thyroid gland, which is seen as a swelling in the front of the neck. The overall goiter rate among school children is 14.9 percent (MOH, 1997). IDD could be eliminated as a public health problem in WB/G through the introduction and use of iodized salt. Until recently, imported salt was generally not iodized, and there is no local salt production to which iodine could be added. However, during the site visit, it was reported to the assessment team that Israeli authorities have stated that there is no objection to Palestinians importing iodized salt from neighboring countries. And, indeed, during the last two years, iodized salt from Jordan has become available on the local market.

UNICEF has taken the lead on addressing IDD and USAID should support and complement these efforts to achieve universal salt iodization. BCC programs should target consumers, encouraging them to buy iodized salt for their family's health.

It appears that clinical vitamin A deficiency (which would result in eye problems ranging from night blindness to total blindness) is not a problem in WB/G due to the presence of greens and carotene-rich fruits as well as the availability of dairy foods in the diet. There has been little investigation to determine if subclinical vitamin A deficiency (which would increase susceptibility to infection) is prevalent. One small study by UNRWA in 1998 found that vitamin A was not a major public health problem for children; however, nearly 50 percent of pregnant women had low serum retinol levels, indicating moderately low vitamin A status.

BCC programs could usefully include the promotion of more fruits and vegetables in the diets of pregnant women in particular as well as for the general population.

Adolescent nutritional status has not been looked at closely as far as could be determined during this assessment, but it appears that as in many other aspects of Palestinian life, adolescent diets are in transition. High consumption of sodas, chips, sweets, and high-fat fast foods is the apparent pattern, with many young women skimping on healthy foods to stay slim.

III. OVERNUTRITION

Causes of mortality and morbidity in WB/G have changed over the years. Evidence is now emerging to suggest that the prevalence of overweight and obesity is already a massive problem and is increasing. A recent study on diabetes in two communities in Ramallah District (Husseini, 2000) found that the mean body mass index (BMI) among urban women was 30.2, while that of men was 27.4. The mean BMI of rural women and men was slightly lower: 28.6 for women and 26.5 for men. (Normal or optimal BMI is between 20 and 24. Overweight is classified as 25–29 and obesity is 30 or above.) In these two populations, 48.8 percent of the urban women and 36.7 percent of the rural females had a BMI of 30 or greater. Rates in men were slightly lower: 30 percent of urban males and 17.8 percent of rural males in these communities had BMIs of 30 or more. Obesity is a significant risk factor for a range of serious noncommunicable diseases (e.g., cardiovascular disease, hypertension and stroke, diabetes mellitus, and various forms of cancer) and other serious health problems.

The MOH currently views noncommunicable chronic diseases, including diabetes and heart disease, as the biggest public health challenges. Indeed, this is the case in most countries of the region where cardiovascular diseases lead the list in terms of DALYs lost from morbidity and mortality. The causes are multiple, but dietary practices, lack of physical activity, smoking, and stress are significant factors. The key to coronary heart disease control is management of risk factors. Unfortunately, in WB/G as in other neighboring countries, heart disease is often striking younger men in their forties, according to local cardiologists. Obesity rates, which appear to be increasing, are placing significant additional financial burdens on health systems to deal with resulting problems. New preventive public health strategies must be applied to tackle these costly health conditions.

As might be expected, the small study cited above found that 10 percent of the adults 30–65 years of age have adult onset diabetes and 50 percent of the men suffer from hypertension. Unfortunately, it appears that most of these patients are not being well managed because they lack appropriate dietary counseling or they lack properly prescribed medications. Most public health professionals contacted during this assessment stated that diabetes affects at least 10 percent of the adult population. There is a high level of concern for the medical consequences of uncontrolled diabetes, which include loss of eyesight, kidney failure, and foot amputations. The health care system cannot afford the staggering costs of this morbidity. In addition, the MOH and other health care partners are spending a considerable portion of their budgets on pharmaceuticals to treat these conditions. It would be more cost-effective to ensure that large financial outlays on medications, such as oral agents for diabetes, are well used by being properly prescribed and used as part of comprehensive management programs. Dietary counseling is a necessary ingredient for good diabetes management.

IV. RECOMMENDATIONS

A. GENERAL RECOMMENDATIONS

1. There is a need to coordinate data collection on nutrition into a cohesive monitoring system. Currently, the MOH, UNRWA, and NGOs routinely collect data on nutrition in children and women. The instruments are not standardized and there is no central location for collating and analyzing data currently collected. Such a comprehensive system would be useful for monitoring the impact of programs, economic and political changes, and for guiding decision-makers with respect to resource allocations.

2. Strengthen technical and institutional capacity through long-term degree training in nutrition. Qualified professionals in the nutrition field are needed in leadership roles in the MOH, NGOs, and universities. Emphasis should be on master's degree training at U.S. institutions in public health, nutrition, maternal and child health nutrition, and clinical nutrition.

B. RECOMMENDATIONS FOR IMPROVEMENTS IN UNDERNUTRITION

1. Monitor the well-being of vulnerable populations through the regular measurement of the nutritional status of young children in households. This measure will indicate overall quality of life of households and give the government and other partners as well as donors a good indication of development progress within WB/G. Preschool age children living in households at or below poverty level should be targeted by such monitoring programs.

2. Include food security considerations in USAID's economic planning process. While the food security situation appears adequate at this time, it may not be stable. Consideration should be given to ensuring that the Palestinian Territory has adequate access to food imports to complement increased production of food supplies in order to sustain food security for the poorest households. As access to agricultural jobs in Israel decreases, consider promoting more agricultural sector employment opportunities in WB/G.

3. Strengthen nutritional counseling as part of improved prenatal care. Mothers should be encouraged to eat adequate quantities of a variety of foods as well as to cope with nutrition-related pregnancy problems, such as anemia, eclampsia, and diabetes.

4. Training for health workers to help women breastfeed effectively is imperative. These include the doctors and nurses in hospitals and maternity centers where breastfeeding should be started as well as those in the primary care system who visit mothers at home or conduct postnatal clinics. Introduce "baby friendly" practices into all sites where babies are delivered. Health providers need education on the clinical aspects and benefits of breastfeeding as well as how to cope with common constraints that mothers face. Health providers need scientific evidence that breastmilk alone is not only enough but is ideal nourishment for an infant for the first 6 months and that additional water and other liquids are not needed if the baby is nursed frequently enough.

5. Look at the need to create mother-to-mother support for breastfeeding. Groups such as La Leche League may be helpful in promoting exclusive breastfeeding and the appropriate addition of complementary foods. However, relying on already trained community health workers and traditional birth attendants may be more cost-effective. Someone in the community is needed to help support a mother who wants to breastfeed but does not think that she has enough milk or is told by her family that the baby is not gaining enough weight. These common situations should also be addressed in behavior change and communication (BCC) programs on television and in adolescent school health. The common rules, such as the more the baby nurses, the more milk is produced, and mothers should be eating and drinking adequately to promote milk production, should be widely understood.

6. BCC to promote optimal breastfeeding should be targeted to young women to build their confidence to successfully breastfeed as well as to mothers-in-law to support their young daughters-in-law in their efforts to fully nurse their infants.

7. Introduce the lactational amenorrhea method (LAM) as a viable child-spacing method in reproductive health programs. LAM holds benefits for both the infant and the mother and can increase the method mix of family planning programs. LAM has been shown to contribute significantly to child spacing and fertility reductions in countries where it is properly taught to health providers and clients and promoted through IEC and counseling.

8. Establish legislation in the Palestinian Territory to support the International Code of Marketing of Breastmilk Substitutes and to enforce the code. UNICEF is taking the lead in this area but USAID's expanded program can complement these efforts in introducing "baby friendly" practices more widely throughout the health system. Mass media messages can be designed to help counteract the effect of the heavy marketing of substitutes currently occurring in WB/G.

C. RECOMMENDATIONS FOR IMPROVEMENTS IN OVERNUTRITION

1. IEC programs are urgently needed to raise awareness of the risks of obesity and diet-related noncommunicable diseases and to prevent or lower these risks. Improving nutritional awareness will contribute to overcoming some of the greatest health challenges facing the country, including the burden of chronic and degenerative diseases. Health promotional activities should be aimed at improving diabetes control, hypertension screening and control, and heart disease prevention.

2. Consider support for a Palestinian version of the U.S. Healthy People 2000 and 2010 initiative. The benefits to this process could be many. The process would encourage the MOH to assume a leadership role in the sector while at the same time involving the NGOs, private sector, and UNRWA health officials in an MOH–led initiative. It would help shift the focus of health authorities to a preventive agenda. A Healthy Palestinian People program would involve the many partners in the sector in a collaborative effort to establish national health objectives, select indicators for measuring achievement, and promote cooperation in ensuring coverage of at-risk populations with essential, agreed-upon interventions. Regular annual reviews to monitor progress on mutually agreed upon targets would help to strengthen collaborative relationships while guiding program implementation. A Healthy Palestinian People initiative could include communicable and noncommunicable disease objectives and targets as well as child health and reproductive health goals.

3. Carry out a cost-effectiveness analysis on adequate diabetes management to document relative costs and benefits to the health system of optimal diabetes control. This analysis would take into account all of the costs of appropriate medications, adequate counseling, and good clinical support, and contrast them with the costs of uncontrolled diabetes to the medical system and society. These consequences include blindness, circulatory problems and infections often leading to foot amputations, and cardiovascular disease. The results of the study could be used for policy dialogue with the MOH and for program planning. Harvard University, through the Data for Decision-Making (DDM) Project, has trained a number of Egyptian researchers in cost-effectiveness methodology for the health sector. These scientists are working in Egyptian universities and could be used for such a study. There may be similarly trained Jordanian professionals as well.

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